Decadal zooplankton changes in two different neritic areas of the Western Mediterranean: 1995–2004

Fernandez de Puelles, M.L.[1] and Mazzocchi, M.G.[2]

[1] *Centro Oceanografico de Baleares. Muelle de Poniente s/n. 07015 Palma de Mallorca, Spain. Email: mluz.fernandez@ba.ieo.es*
[2] *Stazione Zoologica Anton Dohrn, Villa Comunale, 80121 Napoli, Italy. Email: grazia@szn.it*

In order to find out overall signals of basin scale and possible relationships between climate changes and zooplankton, two different time-series of the Western Mediterranean were investigated and compared during a 10 year period spanning from January 1995 to December 2004. The two sampling sites, stn PA in the Balearic Sea and stn MC in the Gulf of Naples, are both located in neritic areas (75 m depth) but with different hydrographic features, the former more influenced by open waters and the

latter by coastal ones. These features were reflected in the zooplankton biomass, abundance and structure, and related to the neighboring water masses.

During the considered decade, the temperature increased in Naples (mean =19.58ºC) but no trend was observed in the Balearic area (mean =17.74ºC) where, on the contrary, a significant increase in salinity was observed. High biodiversity was recorded at both sites, where zooplankton was dominated by small copepods, with a slightly different rank order among functional groups that reflect the different characteristics of the sites. *Clausocalanus, Oithona, Paracalanus parvus, Acartia clausi, Centropages typicus and Temora stylifera* were the most abundant species with local differences in their relative abundances. Among the other groups, cladocerans were more important in Naples (21%) than in Baleares (9%), while the reverse was true for appendicularians (9% and 18%, respectively). The interannual variability during the study indicated an opposite trend of total zooplankton (Figure 1), mainly due to the main species of copepods and cladocerans and in relation to the oligotrophic/eutrophic features of the sites. Although the period considered is short to investigate climate effects on a larger scale, the synchronies and/or differences in the patterns at the two sites seem to indicate that taxa respond differently to local and/or basin-scale signals. Therefore, the variability observed of these groups can be used as hydrological water masses indicators if we relate to other northern and southern sites in the WM. They may be linked to mechanisms acting over large spatial scales in the whole Mediterranean that can be used for further studies of global climatic change.

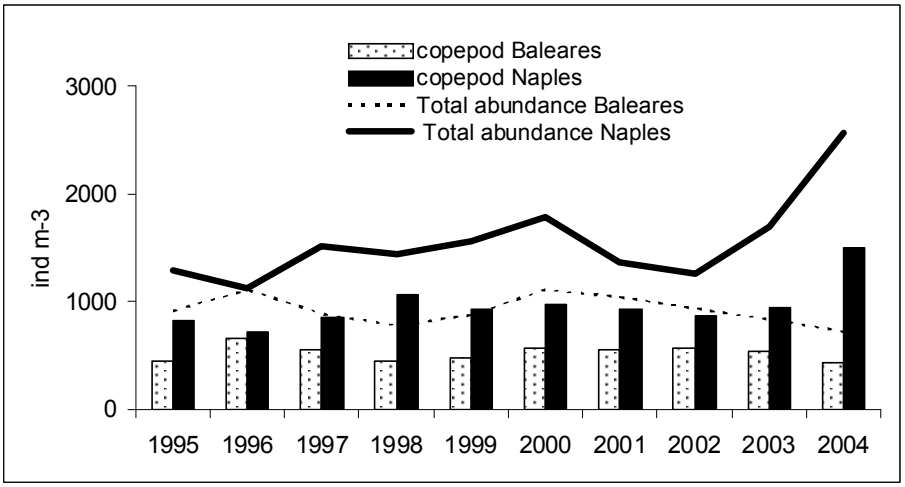

Figure 1. Total zooplankton and copepod abundance in Naples and Baleares site.